# THE AMERICAN ARCHITECT AND BUILDING NEWS.

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## CONTENTS.


SUMMARY: —
Mr. Whistler's Pamphlet. — A War against Critics. — The Boston Building Law. — The Height of Wooden Buildings. — Combustible Building in New York. — The Influence of Insurance. — Mr. Rockwell's House in Brooklyn. — The Dangers of Plumbing . . . . . 33
THE EXTRAVAGANCE OF CHURCH BUILDING . . . . . 34
THE OPEN FIRE-PLACE. VI. . . . . 35
THE ILLUSTRATIONS: —
The Washington Monument. — Design for the Long Island Historical Society's Building. — House near Cincinnati, O. . 37
CORRESPONDENCE: —
Letter from New York. — Letter from Boston. — Letter from Cincinnati . . . . . 37
COMPETITIONS IN INTERIOR DECORATION . . . . . 39
COMMUNICATIONS: —
Newport Sewerage. — Wanted, an Answer. — Architects' Fees 39
NOTES AND CLIPPINGS . . . . . 40


ONE of Mr. Hamerton's books begins with an essay in which he maintains that certain artists should write on art. If the sympathizing friends who have subscribed to recoup Mr. Whistler for the costs of his suit against Mr. Ruskin had persuaded him that certain other artists should not write at all, his standing before the public might have been the better for it. But Mr. Whistler has been writing a pamphlet apropos of the suit, in which he pours vials of wrath on Mr. Ruskin and all critics, and the most of which, it must be said, is rather disordered declamation. He complains that the newspapers have missed the point of the trial, seeing in it only a personal matter. Mr. Whistler takes a larger view. "The war," he says, "of which the opening skirmish was fought the other day in Westminster, is really one between the Brush and the Pen; and involves literally, as the Attorney-General himself hinted, the absolute *raison d'être* of the critic." To the prosecution of this war Mr. Whistler devotes himself with enthusiasm, beginning naturally at Mr. Ruskin, thus: —

"We are told that Mr. Ruskin has devoted his long life to art, and as a result is Slade Professor at Oxford. In the same sentence we have thus his position and its worth. It suffices not, Messieurs! a life passed among pictures makes not a painter — else the policeman in the National Gallery might assert himself. As well allege that he who lives in a library must needs die a poet. Let not Mr. Ruskin flatter himself that mere education makes the difference between himself and the policeman when both stand gazing in the gallery. There they might remain till the end of time: the one decently silent, the other saying, in good English, many high-sounding empty things, like the crackling of thorns under a pot — undismayed by the presence of the masters with whose names he is sacrilegiously familiar; whose intentions he interprets, whose vices he discovers with the facility of the incapable, and whose virtues he descants upon with a verbosity and flow of language that would, could he hear it, give Titian the same shock of surprise that was Balaam's, when the first great critic proffered his opinion."

The war should be a war of extermination. "No! let there be no critics," he adds, "they are not a necessary evil, but an evil quite unnecessary, though an evil, certainly. Harm they do, and not good." One class of critics should remain, however, — literary critics, — to prey upon each other; but the critic and sole authority upon painting should be the painter. That Mr. Ruskin is not an artist Mr. Whistler does not condescend to argue. He assumes it as a fundamental and incontrovertible fact, and he gives him his *coup de grâce* in this alliterative way: "Let him resign his present professorship, to fill the chair of ethics at the University. As a master of English Literature he has a right to his laurels, while as the Popularizer of Pictures he remains the Peter Parley of Painting."

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THERE is a great deal of foolish writing about art, and most of the current criticism is of that kind, no doubt. Like other foolish things it is undesirable; but it is mostly written in water, and we doubt if it has much direct effect on art. In one way it has its effect unquestionably, — that is, in filling the artist's pockets, so far as they are filled. If newspaper and other published criticism were suppressed, it is safe to say, the general expenditure in art would diminish rapidly. Mr. Ruskin might not be pleased to think it, but we doubt if any man in England has done more than he has done indirectly, by turning men's thoughts toward art, and creating a demand for it, to enable Mr. Whistler himself to ask two hundred guineas for a "nocturne." But there are critics and critics. Mr. Ruskin is an artist who writes on art, and it is just because he is an artist that he can make himself so disagreeable to other artists whose ideas are opposed to his. It is this that gives him the convictions, and the courage of them, that enable him to make his blows felt, and this that tells him where to strike. Without this his eloquence might have delighted the public, but it would not have disturbed artists, nor could it have greatly influenced contemporary opinion. But it was when he forgot to be a critic and descended to mere abuse that he most offended Mr. Whistler; as Mr. Whistler certainly forgot to be an artist when he composed this last arrangement in black and white.

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THE conflagration season might be considered an inopportune time for proposing relaxations of building laws, especially in favor of an increase of building in wood. But the city government of Boston, as was mentioned in a communication to our paper last week, has before it a proposition of this kind. Within what is called the fire limit of Boston no wooden buildings are allowed: outside of it they may be built under some restrictions, but if they are for other purposes than dwellings they are not allowed to be more than fifty-two feet above their sills, and these sills must not be more than three feet above the street level. This works inconvenience in some districts of the city where the ground is uneven, and the surface of many building sites is more than three feet above the street, so that the owners, in compliance with the law, must either refrain from building or set their sills below ground. A permit was lately refused by the inspector to a person who wished to build upon sills eleven feet above the street grade. This refusal brought an amendment from a member of the common council which proposes to leave the level of the sills to the discretion of the inspector. At a hearing before the committee to whom the amendment was referred, there was naturally a remonstrance from the property-owners and residents in the endangered neighborhood, and from persons who are in favor of a strict building law, who urged the danger to the city of relaxing its instructions and the impropriety of submitting them to the discretion of the inspector. It was argued on the other hand that the law was nugatory, inasmuch as dwelling-houses were constantly built with sills above the required level. The question was left undetermined; but the impression prevails that the ordinances will be modified so as to confine the strict operation of the law to the original city limits, and give the inspector joint authority with the Committee on Surveys and Inspections to suspend its application in the annexed suburbs.

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ONE is tempted to wonder somewhat both at the wording of the law, and at the apparent course of the debate on it in passing by what is after all the essential point in the whole matter, the speaker in behalf of the board of underwriters being apparently the only person who touched upon it. The law is badly drawn, but the method of improving it proposed in the amendment seems to be the poorest possible. The blunder in the law is in restricting the height at which the wooden construction begins, instead of that at which it ends. The one thing necessary in such cases is to prevent carrying wooden buildings high into the air, where, if they burn, they endanger their neighbors, and are hard to get at with water. When houses are near enough together to make restrictions necessary, the only safety is in a uniform rule. The only uniform level from which heights can be reckoned is the street, where the water and the fire-engines must be. The possession of an exceptionally high lot should not entitle a man to thrust a torch into the air, to the peril of those who surround him. To fix the height from the ground, as the speaker for the underwriters suggested, is not enough when irregularities of site give some houses commanding positions over others, or lift them out of efficient range of hydrants and fire-engines. The necessary restrictions should be accepted as the natural disabilities of a high site. These considerations, however, merely concern the height at which buildings stop, not that at which they begin. So long as they do not reach too high, the higher they begin — the higher their sills are set, that is — the better. At present the law virtually forbids putting basement or lower story of masonry under a superstructure of wood, a thing which it is desirable to encourage. If the Boston city government is anxious to lessen unnecessary restrictions without sacrifice of the public, we should expect it to authorize its citizens to begin their wooden buildings as high as they

pleased, but to insist on their finishing at the appointed level. The law might be framed so as to exclude exceptionally remote or isolated sites, without burdening committees or inspectors with a discretion which must provoke either personal ill-feeling or a lax administration. One would naturally suppose that an inspector would be glad to be excused from this invidious responsibility, yet we find the inspector of Boston pleading for it.

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At the same time, the exceptional costliness of the two recent large fires in New York has made the people of that city anxious, for the moment, at the danger they live in, and set them to meditating on the insecurity of great buildings with thin shells of masonry or iron, floored, furred, and finished with wood, and crammed with inflammable goods. They may reasonably be anxious, for they have thousands of acres of such buildings crowded together, only here and there broken by one which aims to be fireproof, while four miles and more of wooden sheds stretch over the piers that fringe the water line. It only needed a strong wind on the nights of the fires to convert a sharp warning into a terrible punishment. It is not strange that some of her friends hasten to remind New York that she is the worst built city in the world, which is perhaps true, as far as combustibility is concerned, if we except some of our Western towns, and such half-civilized cities as Constantinople and Cairo; without that limitation we probably need except only the domestic examples. Nor need we wonder that Chicago, against which the insurance companies have sharply discriminated since her great fires, should take this opportunity to retort upon New York, and declare herself the safer city of the two; or that the insurance companies should be frightened into increasing their rates, and some of those outside the city should begin to ask, as they have of Chicago, whether it is safe to insure there at all. Acknowledgment of the inferiority of our American modes of building is certainly making some progress, and we hear more frequent proposals for something better, even if the improvements are only of a half-way kind, such as solid wooden floors and the omission of furred spaces. But it is very difficult to get men to spare enough from their business capital to build solidly and permanently. When we have burned another city or two, or when we have so cut into our forests that wood has grown scarce and dear, there will be stronger incitements to reform; or if the rates of profit and interest on money should remain permanently lower than they were in former years, there will be inducement to put more capital into such permanent investments as buildings, because there will be less temptation to spare the uttermost farthing for active use. But a fever of speculation, such as is only too likely to follow any appearance of much improvement in business, would be a great check on progress in building.

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At present the best hope of improvement, next to the influence of architects, seems to be in the influence of underwriters. The burden of losses has been transferred to them, and it is this more than anything else, we suspect, which hinders safe building. If owners bore all the risks of fire, we may be sure that they would put more money into their buildings for the sake of avoiding it. When they can be secured against this risk for a moderate premium, the sense of danger which would be their chief stimulus to improvement being removed, they put the money where it will bring more profit. They will spend lavishly for show, because show is one of the profitable elements in their business; but not for security, because security has become the business of insurance companies. It is evident that the prevalence of insurance has not been an unmixed benefit. While it has shielded men in a great degree from individual hardship, it has undoubtedly increased the gross amount of loss by making them careless. The wholesome restrictions and discriminations which underwriters have established have done good, but they have not been sufficient to countervail the demoralizing influence of comparative security, or rather of recompense for losses. The insurance companies themselves are rather reckless. Competition is sharp among them, and they take unsafe risks. Every great fire brings down some of them; but the profits of their lucky years are tempting, and they swarm like bees. A great part of the controlling power has passed with the risks into their hands. They have already done something to bring about a better order of things: to them and to a gradual improvement of building laws we must look mainly for our future security. In the face of all this it is a poor time for laxity.

The good old-fashioned theory that the unclean conditions of which malignant diseases are bred are confined to the squalid houses of the poor and vicious is badly shaken nowadays, when the rich and fastidious have provided themselves with special means of encouraging such diseases, which are in a measure out of reach of the poor. The experience of Mr. Rockwell's family, in Brooklyn, is a case in point. A millionnaire built himself a costly house on the Heights, and had it liberally plumbed. In two years since the house has been occupied nearly all the members of the family have been attacked with scarlet fever or diphtheria, of which Mr. Rockwell and one of his grandchildren have died. The theory of the Board of Health that the family had been poisoned through their drains proved most unpalatable to their neighbors, who have held their fashionable quarter to be exceptionally wholesome, and who naturally ask whose house is safe if Mr. Rockwell's is pestilential. But an inspection by the Board has shown reason enough for its theory. The house stands on the highest part of the Heights, in the region where the pressure of the gas from the sewers is strongest, and where the utmost precautions are required to keep the gas out of the dwellings. The house was provided with Jennings closets and set wash-bowls; each closet and wash-bowl had its trap, and the soil pipe was carried up through the roof, opening into the air. The house had its own drain, which dropped fifty feet vertically into the sewer in Furman Street below the Heights, and so far all seemed right.

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But it appeared that between the house and the drain there was no trap, so that the drain and soil pipes formed together a high ventilating chimney for the sewer. The examination by the inspector of plumbing showed the water closets, which were hollow-plunger closets, depending upon the seals of the traps for security, to be so arranged that the traps were siphoned by the discharge, and probably remained unsealed most of the time. The soil-pipe carried up to the roof was used as a drain-water conductor, in which the downpour of a heavy rain was likely to siphon out all the traps. The traps of the various wash-bowls in the upper stories, connecting with one waste-pipe, had no air-pipes, and it was found by experiment that as the wash-basins were used they siphoned each other alternately. With all these opportunities it is probable that the gases from the sewer had tolerably free access to the house at any time, notwithstanding the opportunity for escape by the conductors, without which indeed the house would probably not have been habitable at all. Finally, an overflow from the main tank, from which more or less water was drank, was carried directly into the soil-pipe, and sealed only by bending its end down into the water, giving opportunity for constant absorption of sewer gas. It is probable that a thousand of houses, all over the country, which are believed by their owners to be faultless, are in no better condition than Mr. Rockwell's. But if this was the case with a house on which money had been spent without stint, and where the plumbing, like everything else, was intended to be of the first class, what is to be expected where second-class or third-class work is done, and crowded down by competition to the lowest limit of cost?

## THE EXTRAVAGANCE OF CHURCH BUILDING.

We find in an exchange a quotation from the *National Baptist*, touching a subject of much controversy between architects and their employers. Says the *Baptist:* "There is a most mischievous idea abroad in regard to churches. People talk about the duty of putting up a church that will be 'a credit to the neighborhood,' 'an ornament to the city,' and all that. And so a structure is put up that is grand for the neighbors who see it from the outside, and who don't have to pay for it; but it is a ruinous calamity to the people inside, who can't see, or hear, or breathe, and who find that in the effort to 'adorn the neighborhood' they have crushed themselves with debt, and have perhaps wrecked the whole enterprise. We are afraid that not a little of the blame lies at the door of the architects. We fear that not a few of our churches are erected to the praise and glory of Mr. Highspire, the eminent architect (just as not a little of the singing is to the praise and glory of the organist, the leader, and the choir). All very well if the architect pays the bills; but such is not usually the case. How true is it that there is one virtue which has survived the Fall: it is the virtue of being generous with other people's money."

Undoubtedly the extravagance of church building is a serious evil nowadays, just like all the common extravagance, of

which it is only one phase. Undoubtedly architects are tempted to extravagance in their expenditures, as other men are; and if they are intrusted, more or less, with the spending of other men's money the temptations to extravagance will show themselves there. Undoubtedly, too, there are a good many of them, as there are of every other kind of men, who are either injudicious, over-enthusiastic, or unscrupulous; and it will often happen that when they have full swing they will lead their employers into difficulty, just as other indiscreet or unscrupulous agents will. It is a popular mistake, however, to talk of architects as if they were exceptional in this respect, except so far as is due to the fact that their services directly involve the spending of money, or that they are exceptionally responsible for the mischief. So far as we can see, the extravagance of architects is only part and parcel of that in the communities in which they live, and of the clients who employ them. Their most expensive work is that which they find most admired; those of them who build most expensively are most sought after; and of the designs which they submit in competitions, other things being equal, the showiest usually carry the day. In fact the very word "showy," which to a trained taste is at once suggestive of offence, is one of the commonest that in the innocent frankness of ordinary speaking is used as a recommendation. The building of a handsome church, or other conspicuous building, is always urged as an advantage to the neighborhood; and conversely, people who have churches to build are anxious to put them where, to suit their surroundings, they must be handsome. In other words, fashion and the desire for display have invaded the sanctuary just as they have invaded every other place, and the architect who does not consult them will not be popular. It is true that church builders are averse to spending the money which the architect's splendors are apt to cost, and a little inclined to expect him to provide them without cost; but the splendors they will have, and will rather spend money freely — or borrow it — than forego them. It is not surprising, then, that architects, like other men whose services involve the spending of money, should be infected with this tendency, and should chime in with it, and since it belongs to them to lead the way should lead in the direction in which this points them. Among different architects it is quite possible for a church committee to select one who has a reputation for simplicity and economy of work, — at least if these qualities bring any reputation. It is always possible for a client to choose a practitioner who is known for the qualities on which the client sets most value. But we must sorrowfully confess that it is hard to count up architects who have risen to great popularity by conspicuous practice of the virtues we have mentioned. There are men who display them, but they are not those whom great success attends. There are cheap architects who are popular; but they are those who sacrifice substance to display, and their work is more extravagant in its kind than that which is both substantial and splendid.

There is no doubt that, in one respect, the architect is subject to an exceptional temptation. His artistic impulses are to the carrying out of conceptions which are more or less costly. These conceptions are among the things that most recommend him to his clients, and most enhance his outside reputation. To carry them out properly costs more than is commonly understood in a community educated to cheap work and cheap succedaneums; so that the client, committee, or church society that is captivated by the conceptions is apt to wonder at and resent the cost of executing them. The architect's instinct as a designer leads him to insist on details of execution of which the client does not see the meaning, though he may in the end unconsciously feel the result. The client may be bent upon an increase of expenditure in one place; the architect's sense of fitness tells him that this requires a corresponding increase in another where the client does not appreciate it, and they are at cross purposes. This leads to conflicts between the architect's business conscience and his artistic conscience, which call for a good deal of tact and self-denial. It is his embarrassment, too, that the things which tell most for his reputation are those that cost most money. This is the chief handle of such accusations as we have just quoted. It exposes him to the charge of seeking his own aggrandizement, though he may be only faithfully carrying out his ideal. It makes it difficult for the honest architects to disentangle the impulses of personal ambition from those of a genuine artistic instinct. There are many who, carried away by the desire to do a fine thing, are inconsiderate in this, and bring reproach upon their profession, no doubt; there are some who are unscrupulous. For these we have nothing to say, except that instead of the punishment they deserve they too often get the reward of success. But it is a mistake to cite them as representative architects, as it would be to call all physicians quacks, or to make the sensational preacher the typical minister. Mr. Highspire and the sensational preacher are both popular; but it is perfectly possible to distinguish both, and unnecessary to employ either.

Apparently there is a fallacy here, underlying the popular notion that holds the architect accountable for things of which not he, but the client, is the controller. The architect is not the keeper of his client's purse, nor of his financial conscience; he is only the spender of the allowance he makes. He has opportunities certainly to lead his client toward extravagance, but not to drive him to it. If his tendency is to spend money for his client, this is natural; for it is his promise to furnish the client with ideas, and an architect's ideas are in the nature of things not to be carried out without expense. He is not concerned to inquire too curiously into the condition of his employer's finances; but may assume that he knows his own business, and has self-control enough to stop where he ought. Not that the architect can hold himself emancipated from the consideration of cost; or is not bound to a conscientious care that his projects involve no waste, and a conscientious endeavor to keep within whatever limits of cost are actually fixed for him; or to refrain from persuading his client to expenditures that will lead to repentance; but the final responsibility rests where the final authority rests, — with the client, who is the naturally appointed guardian of his own exchequer. Of course, if architects carelessly allow their clients to be deceived, they are derelict; if they wilfully mislead them, they are dishonest; but the majority of architects are neither derelict nor dishonest. Perhaps the greatest cause of trouble is that clients — building committees especially, and, we are inclined to think, church-building committees most of all — always want more than their limit will allow: the rule is so general that it may be called universal. The architect is given a limit and several urgent requirements, and finds them incompatible; his question is which he shall sacrifice to the other. He is loath to offer a design which does not satisfy the requirements; clients or committees are apt to cling to them, and for the moment shut their eyes to the cost. As the work goes on the client's desires increase instead of subsiding. When at the end his eyes are opened again, and he finds himself burdened with what he has done, it is through a very common weakness of human nature that he is tempted to make the architect his scape-goat.

The charge of extravagance is one which building committees are not infrequently tempted to shift upon their architects, but it is not one that any class of men can in these late days very well afford to throw at any other. Architects are, we suspect, not more prone to the fault than other men. They have not the wholesome safeguard which their clients have, of being obliged to furnish the money that they spend, or rather that their clients spend by their advice; but on the other hand they have not, or need not have, the power to spend without their clients' consent. The practice of self-denial is not by nature palatable either to architects or to church societies. Architects have their temptations to lavishness, but one rather tires of hearing appeals of building committees for a vicarious thriftiness, just as one tires of hearing architects declaim against oppressions from these same committees which they might remedy themselves if they would.

## THE OPEN FIRE-PLACE. VI.

### EFFORTS TO IMPROVE THE DRAUGHT AND ECONOMIZE THE FUEL.

INTERESTING and beautiful as were these immense fire-places of the Middle Ages, they were open to the objection of being too expensive for ordinary use, both in first cost and in their extravagant consumption of fuel. For the majority of our modern rooms they would be altogether out of proportion in size, and about as much in place as would be a smelting furnace for a domestic oven, or the grand portal of a cathedral for the entrance of an ordinary dwelling. Their capacious throats engulfed huge quantities of air from the room, — much more than was necessay to support the combustion of the fuel,[1] — and, as this air could not conveniently be allowed them, where no economical means of warming it as it entered the room

[1] To support the combustion of say three kilograms of wood about thirty cubic meters of air are necessary, whereas we have seen by our Table I. that over eight hundred cubic meters passed up our small chimney. Thus over twenty times as much as is necessary to support combustion, and ten times as much as would generally be necessary for ventilation, are used even with our small fire-places.

was known, they smoked (as any sensible chimney would do under the circumstances), and the only way that could be imagined to diminish the smoking was to diminish the size of the fire-place opening. This diminution took place as has already been described, and the fire-place assumed its present economical proportions.

The chimney continued to smoke, however, and it was seen that the cure had not as yet been discovered.

The first recorded effort to study the matter seriously on a scientific basis was that of Louis Savot, a physician of Paris, born in 1579 and died in 1640. Savot made a study of architecture from a sanitary point of view, and having found in the smoky chimney an unusually troublesome patient, he set to work, like a true physician, to investigate the causes of the disease. But his success was only partial. The treatment he administered was quieting and salutary, but he failed to discover the real trouble and the secret of its cure. He improved the form of the fire-place opening by diminishing its width, so that less cold air could enter on each side of the fire, and he showed that the flue should be smooth to lessen the friction of the ascending smoke.

His is the first recorded attempt to save the waste heat of the smoke and the back of the fire. The famous fire-place at the Louvre, of which Fig. 29 gives the front elevation and Fig. 30 the section,

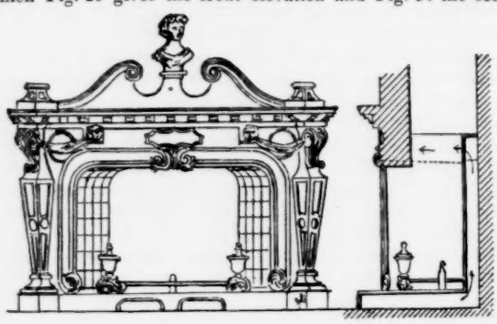


Fig. 29. From Tomlinson. Fig. 30. From Joly.

was first brought into public notice by him, and shows the manner in which this was done. The room is warmed not only by direct radiation, as is usual with the ordinary fire-place, but also by the heat of contact of air. The air of the room enters the opening shown under the grate, passes behind the back of the fire-place and above the top, as shown by the arrows, and returns heated into the room through the round openings just under the mantel moulding. The ornamental bands passing in front of these openings appear to have been designed to deflect the warmed air upwards as it issued from them, and prevent its returning at once into the fire-place. To admit of this circulation of air the fire-place was, of course, made double as shown, and the inner box was made of iron. In this way a portion of the cold air at the bottom of the room was heated and tended to rise to the top, and a certain amount of heat was saved. This ingenious contrivance does not appear to have been appreciated or successful, though, since the time of Savot, the arrangement has, with slight modifications, been patented over and over again as a new invention. By it neither was the air of the room changed nor was the draught of the chimney improved, and the saving of heat does not appear to have been sufficient to bring about its introduction. A simple modification in the nature of its air supply, however, would have rendered this invention of the greatest value. By taking the supply of air to be heated from the outside instead of from the room itself, we have the principle of the so-called ventilating fire-place, hereafter to be described, and in consideration of its simplicity it would have formed one of the best of its class known. To secure the air-space below the hearth the fire was raised three or four inches above the general floor level. This rendered the fire more efficient in warming the floor of the room, inasmuch as a greater number of rays of heat would evidently strike the floor, and all at a better angle.

Fig. 31 shows, in section, another form of Savot's invention.

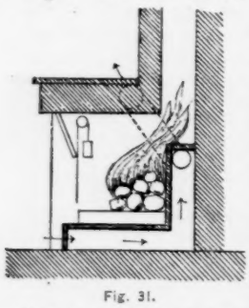


Fig. 31.

When the column of air in an upright flue is heated and becomes lighter than the surrounding air, it is no longer able to maintain its equilibrium with the colder and denser column outside, which therefore rushes into the house through the cracks and crevices, driving the warm air up the chimney until the balance is restored. If, now, these cracks are all closed, the cold air will force its way into the room through the chimney itself, descending on one side of the flue, while the hot air and smoke ascend on the other. A struggle will ensue between the two opposite currents, causing the cold air to enter spasmodically, or in puffs, bringing part of the smoke with it.

But let a separate inlet be made for the outside air and it will enter the room in a steady stream and drive the smoke smoothly and rapidly up the flue. In the majority of cases a smoky chimney may be cured by observing this simple law. The first really important step in improving the chimney draught, then, was made when this principle was recognized, and a sufficient opening provided for the admission of the outside air. The manner, however, in which the renewal of the air was at first accomplished was such as to improve the draught only at the expense of the ventilation of the room, as will be seen by examining the accompanying Fig. 32. It represents the apparatus of Sir John Winter, invented in 1658.

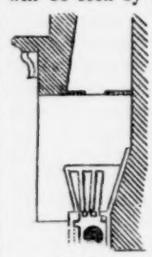


Fig. 32.

Fresh air was brought in under the grate from the outside and acted on the fire as a powerful blower. A valve was placed in the supply-pipe and by it the amount of entering air was regulated to the requirements of the fire. It will be seen at once that when the supply-pipe was large enough and the valve was opened the fire would be supplied with air entirely by this pipe, and all objectionable draughts through window and door cracks be effectually debarred. But it must also be borne in mind that by just as far as the draught was supplied from this source, by just so far would the ventilation of the room be reduced, and if the pipe supplied all the air necessary the ventilation would be nothing.

Fig. 33 represents the section of another form of the "blower" chimney almost entirely abandoned at the present day, but at the time of its invention much in vogue. The fresh air is brought in a canal from the outside and turned on the fire from above, passing between the two plates represented in section under the mantel. This has all the objections and none of the advantages of the blower of Winter. The ventilation of the room is destroyed; a cold current of air is produced in the neighborhood of the fire; and the point of delivery of cold air is not located favorably for stimulating the fire.

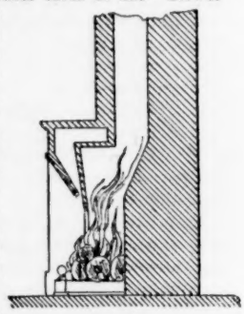


Fig. 33.

Still another form has been much praised, though without a shadow of merit. By it the fresh air is introduced into the room directly from the outside at the level of the floor, just in front of the fire-place, under a fender perforated for the purpose. The form of the fender is such as to direct the incoming air forward upon the fire as it enters. This is the worst possible form of fire-place; and besides having all the objections enumerated above is liable to clog with dirt, and is difficult and expensive to construct.

A modification in the *manner* of supplying the fresh air, so that it could be used to ventilate and warm the room before feeding the fire, would have rendered Winter's invention of the greatest value.

His contrivance was, therefore, also a failure, though it has, since his time, after having undergone slight modifications not affecting its general principle, been frequently patented as a new idea. It only remained to combine the inventions of Savot and Winter to produce most useful results.

### THE VENTILATING FIRE-PLACE.

This combination was made, in 1713, by Gauger, the real inventor of the ventilating fire-place and, indeed, of almost all the most important principles of improvement in the form of the fire-place since the time of Savot. He gave the fire-place the elliptic form as shown in Fig. 34, instead of the square form hitherto used, for the purpose of improving its reflecting power. He showed that, with the rectangular jambs, very few of the rays of the fire are reflected into the room. Thus, if we suppose a fire to be at F in Fig. 35, in an ordinary fire-place, only two of the rays represented by dotted lines as striking the jambs would be reflected into the room, the rest being thrown upon the opposite side or upon the fuel or back of the fire-place or up the flue. With the curved back, however, all the rays come into the room. "Geometricians," he says, "are sensible that all radii which set out from the focus of a parabola and fall upon its sides are reflected back parallel to its axis." So any ray

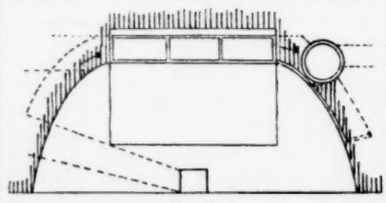


Fig. 34.

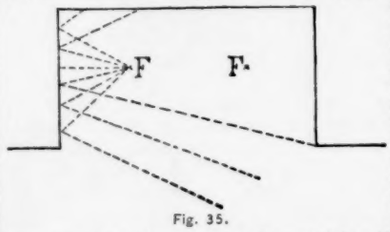
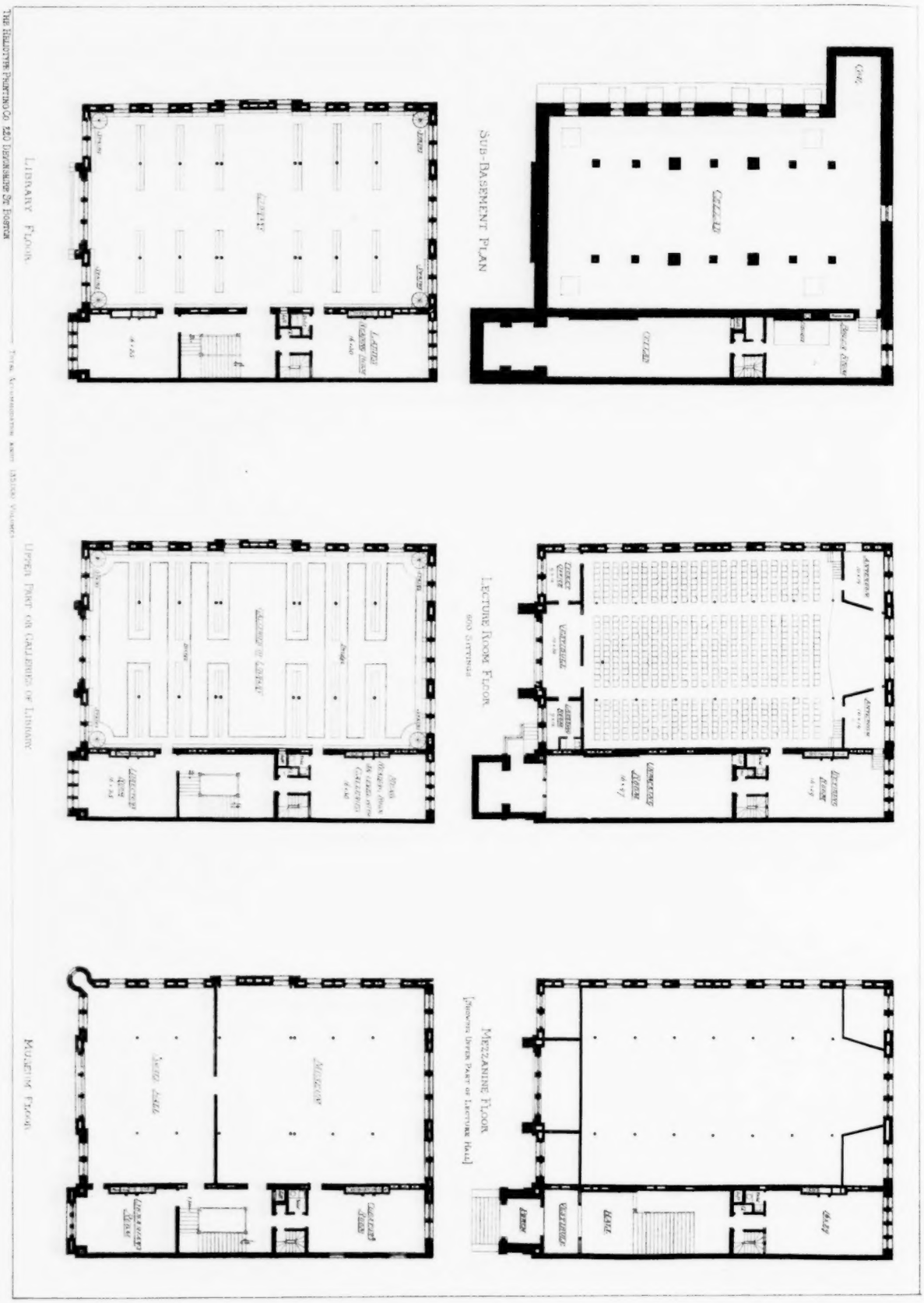
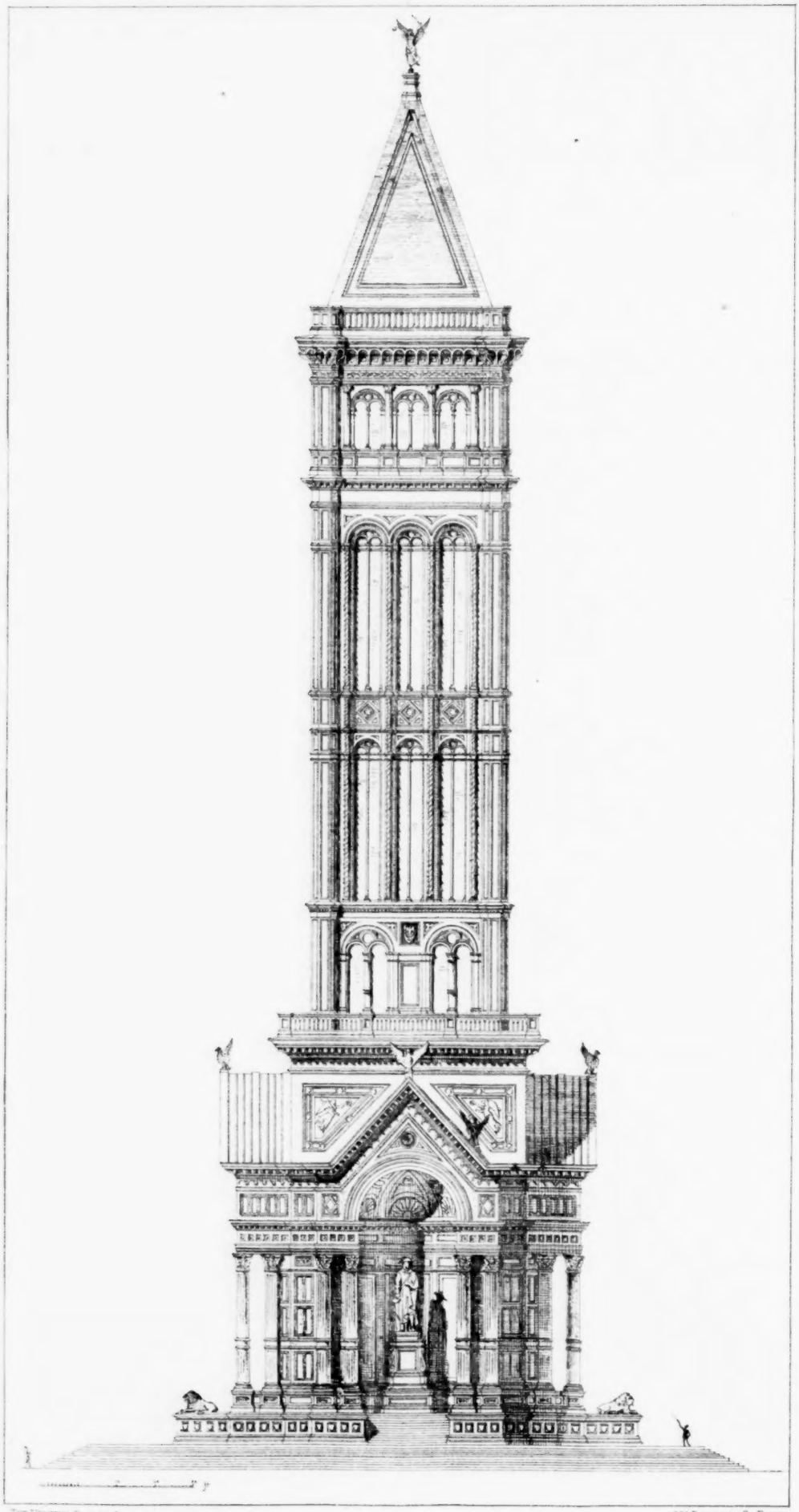



Fig. 35.


SUB-BASEMENT PLAN
LIBRARY FLOOR
LECTURE ROOM FLOOR
MEZZANINE FLOOR
UPPER PART OF GALLERIES OF LIBRARY
MUSEUM FLOOR
L.I. HIST. SOC. BROOKLYN, N.Y.
J. PICKERING PUTNAM, ARCHT.



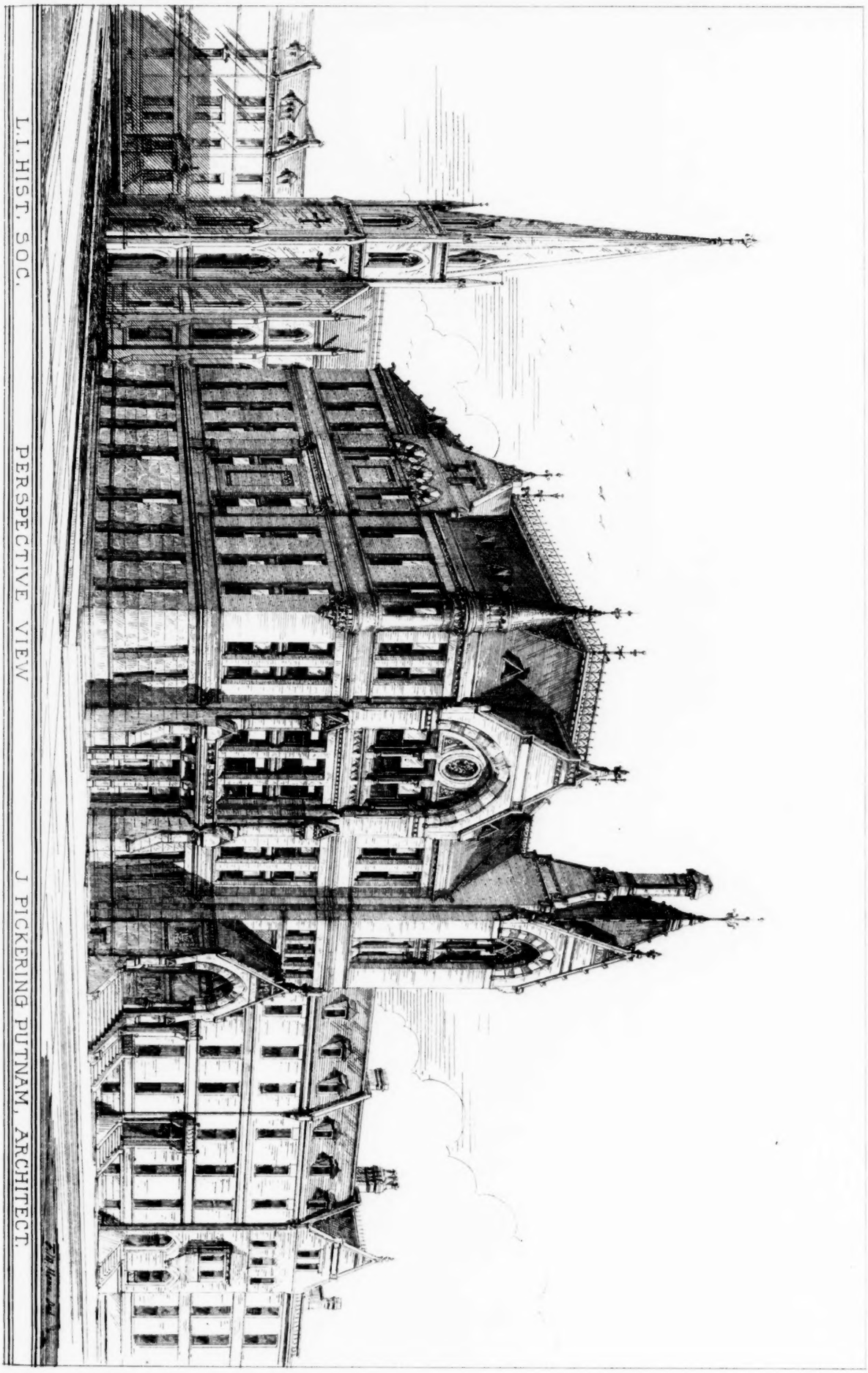
THE HECTOGRAPH PRINTING CO. 220 DEVONSHIRE ST BOSTON.

MR STORY'S DESIGN FOR THE WASHINGTON MONUMENT.

RESIDENCE OF WM. B. KEYS, GLENDALE, MASS.
Chas. Brigham, Arch't.
Edw. C. Jennings.
FIRST FLOOR.
LIBRARY
PARLOR
HALL
STAIR HALL
VERANDA
SITTING RM.
DINING ROOM
KITCHEN
SECOND FLOOR.
BED RM.
BATH RM.
HALL
LIBRARY
SERVANT
BED RM.

L.I. HIST. SOC.

The Electrotype Printing Co. 220 Devonshire St. Boston



L.I. HIST. SOC. PERSPECTIVE VIEW J PICKERING PUTNAM, ARCHITECT.

falling from the fire or parabolic focus F or F′, Fig. 36, and striking the back of the fire-place, will come into the room. The same will happen to any ray coming from any part of the fire intermediate between the two foci F and F′.

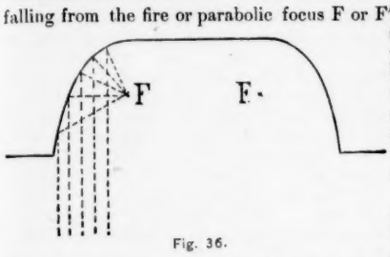


Fig. 36.

The fire-place of Gauger, besides the parabolic jambs and a small *soufflet*, or blower of Winter, had also, after the principle of Savot, hollow back, jambs, hearth, and mantel, for the purpose of pouring into the room a copious supply of fresh air heated in these hollow walls. But unlike Savot he brought the air direct from the outside for ventilation. These spaces were called caliducts or meanders, and are shown in Fig. 37. They contained perpendicular or horizontal divisions or baffles so arranged as to cause the air to circulate in the hollow spaces, in the direction of the arrows, as much as possible before entering the room.

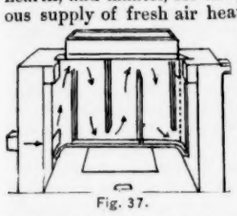


Fig. 37.

The temperature and amount of the fresh air introduced into the room was regulated by a valve in the air channel acting like a two-way water-cock. A small cylinder, Fig. 38, revolved within a larger fixed one in such a way that the cold air could be passed directly into the room, or first into the caliducts and thence into the room, or shut off altogether. The axis of the revolving cylinder passed through the cover of the fixed cylinder, and had a small lever attached to it by means of which it was turned by the hand into certain positions marked on a small dial. The caliducts were made of iron or brass. He preferred to place them only in the back of the fire-place, as shown in Fig. 34, leaving the sides solid and lined with metal.

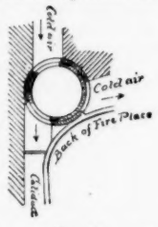


Fig. 38.

The object of the *soufflet* was to bring a small column of air directly under the fire to act as a blower in lighting it. The fire once lighted, the *soufflet* could be closed by a valve and all the fresh air turned into the room through the regular openings above. This fire-place of Gauger is the legitimate ancestor of scores of modern patents, whose authors are either ignorant of or have failed to acknowledge their descent therefrom.

In reading his work "La Méchanique du Feu," we see that the author was in want of a proper word to express his idea. The word "ventilation" did not then exist. Dr. Desaguliers, the translator of Gauger's treatise, was the first to use it.

The objection to the fire-place of Gauger is that it is somewhat expensive, and difficult to cleanse or repair when out of order.

To give the sloping back the parabolic form is almost too much of a refinement, and the *soufflet* is unnecessary where sufficient air is provided by the caliducts. Moreover, the hottest part of the fire-place is just above the flame rather than behind or at either side. Therefore the caliducts of Gauger do not occupy the most advantageous position with respect to the fire. By modifying these details and improving the form of the chimney-throat the arrangement might be made much more perfect. The external air, in passing through the caliducts, is, nevertheless, raised to a temperate heat, rises and spreads itself through the chamber, again cools, descends, and, after ventilating the room, supplies the fire with air, and escapes up chimney. The Gauger fire-places were constructed for the combustion of wood fuel. Dr. Desaguliers modified them for coal, and put up a considerable number of them in London. For a time they were appreciated and rose rapidly into favor; but, unfortunately, an outcry was raised against them by scientific opponents of Dr. Desaguliers, who declared that these fire-places "burnt the air, and that burnt air was fatal to animal life;" and the death warrant of the new fire-place was signed. When used again they appeared under a different name and protected by patent rights. The unfortunate Dr. Desaguliers mournfully remarked, "As I took so much pains and care, and was at some expense to make this arrangement of air useful, I can't help complaining of those who endeavored to defeat me in it."

### SMOKE-CONSUMING FIRE-PLACES.

In 1682 the savants of Paris were attracted by the exhibition of the "Furnus Acapnos," (smokeless stove), invented by Dalesme.

It was simply a fire-place resembling a large clay pipe, Fig. 39, and its object was to consume its own smoke by causing it to pass downwards through the burning fuel before entering the chimney flue. In the ordinary fire-place a large portion of the fuel escapes unconsumed in the form of smoke, which, in large cities like London, becomes a serious nuisance, hanging over the city in the form of a dark cloud, and filling the atmosphere with soot and impurity. To consume this smoke it is only necessary to bring it in contact with the glowing cinders of the fire, when it will at once ignite and give out its heat. The fuel, wood or coal, is placed in the vase over the grate bars. From the ash box below the grate bars an iron smoke pipe leads into the brick flue, which has no other inlet for air than through the fuel in the vase. The upper part of the iron smoke pipe is then heated by a lamp in order to establish a draught through the fuel. Brushwood is lighted at the top of the coal, and this, burning downwards, ignites the entire mass. The smoke of any new fuel supplied from above is consumed in passing through the glowing coals already ignited.

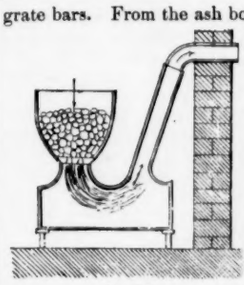


Fig. 39.

Justel, who described this arrangement to the Royal Society in 1681, says that "the most fœtid things, matters which stink abominably when taken out of the fire, in this engine make no ill scent, neither do red herrings broiled thereon. On the other hand, all perfumes are lost, and incense makes no smell at all when burned therein."

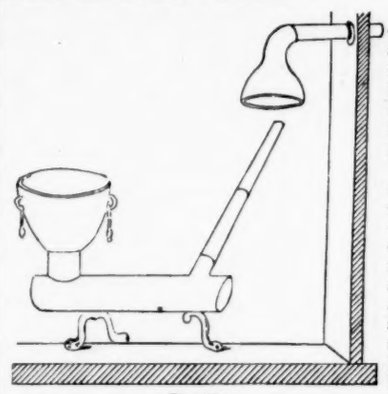


Fig. 40.

The invention of this device was claimed by a German named Leutmann, who called his fire-place the "Vulcanus famulans," of which Fig. 40 gives the appearance.

But it is difficult to see how the draught could be effected in this machine, both on account of the break at the end of the iron smoke flue which would admit the external air, and on account of the small size of this flue. For these reasons Franklin gives it as his opinion that the invention not only did not belong to the German at all, but that he did not even understand the principle and working of the machine he claimed as his own.

## THE ILLUSTRATIONS.

### MR. STORY'S DESIGN FOR THE WASHINGTON MONUMENT.

We print to-day an illustration of Mr. Story's design for the Washington Monument, which we described in detail in our last number. The design has already appeared in the Washington papers, or in one of them, and so we may assume that it is made public. Comparison with the photograph shows that through the negligence of the draughtsman, some of Mr. Story's enrichments have been omitted or slurred, a defect which takes something from the detail. But the desirability of printing the illustration while the interest of it is fresh prevents our waiting longer for a new drawing.

### DESIGN FOR THE LONG ISLAND HISTORICAL SOCIETY'S BUILDING, BROOKLYN, N. Y. MR. J. P. PUTNAM, ARCHITECT, BOSTON.

This design was submitted last year, in a close competition, the successful competitor in which was Mr. G. B. Post, of New York.

### DWELLING-HOUSE AT GLENDALE, NEAR CINCINNATI, O. MR. CHARLES CRAPSEY, ARCHITECT.

This house is now building for Mr. William B. Keys, at a cost of about $10,000. The material used will be brick with Ohio freestone finish, and the roofs, together with parts of the elevations, will be covered with Akron tile; the floors are deadened and the walls are furred.

## CORRESPONDENCE.

### AN AUDACIOUS CLAIM FOR EXTRAS.

NEW YORK.

The Jefferson Market Prison and Court House seems to be enveloped with an atmosphere of litigation. It has been fought and wrangled over in public and private since the first mention was made of the intention to erect it, and Messrs. Vaux & Withers, despite the fact that the building is an artistic success, have gained little pecuniary benefit from it. The Cushing case will be fresh in the minds of our readers, where the stone carver found sufficient assurance to charge the most exorbitant prices, and supported his charges by making the most remarkable statements about the architects in their private relations. Just now the Court House is coming into prominence in the usual way through a dispute over a bill for extra work. P. K. & J. A. Horgan, the masonry and brick-laying contractors, took a gross contract for $116,885; at the conclusion of the work they presented a bill of extras for over $44,000, of which $30,000 were for delays attributable in nowise to anybody but the

contractors themselves. The usual examination of the bill of extras was made by the architects, and an allowance of $5,188 was made, and a certificate given for that amount in December, 1876. The contractors were not satisfied with this, and so represented matters to the comptroller that arbitrators were appointed, — Joseph M. Dunn, for the city, and Lawrence J. O'Connor, for the Messrs. Horgan. These gentlemen are architects, Mr. Dunn having built many buildings, asylums, etc., in the city, under the control of the Department of Charities and Correction. Mr. O'Connor has done much school and church work.

What examination they made of the case before them is not known, but it is certain that the arbitrator for the city did not call upon the parties from whom alone he could have obtained the information which was of value to the city. Finally a report was rendered which gave some $15,000 to the contractors instead of the $5,000 given by the architects. The consideration of the bills presented by the contractors showed some curious items. In a face wall of Philadelphia brick the use of the S-jointer was charged for, and this on 47,000 feet of wall face, when there were but 32,000 feet in the building. The bills of sub-contractors were ignored and thrown out of the account against the Messrs. Horgan, and the curious results which follow the least license to a contractor for a large piece of work were illustrated in a dozen different ways. Before the payment had been made, however, Mr. Withers heard of the report of the arbitrators; and now there is prospect of a ventilation of the case before the corporation counsel, and the Jefferson Market Court House spook will once more wander through a fire of litigation. W.

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### THE LOAN EXHIBITION.

Boston.

"Neither a borrower nor a lender be," said good Polonius with careful wisdom; but he lived not in the age of loan collections. The amount of borrowing that goes on before an exhibition like that of the Boston Society of Decorative Art, now in progress in Tremont Street, is something to wonder at. Here are some sixteen hundred articles, by the catalogue, illustrating more or less fully almost every branch of the purely decorative arts; every one of them acquired with more or less of triumphant satisfaction, through purchase, gift, or inheritance by its fortunate owner, and carefully guarded among the most precious of his possessions. That this multitude of small household gods should have been enticed away from their sacred cabinets into the public air on an exhibition to be seen of men is an evidence of devotion on the part of their owners as well as of enterprise on the part of the managers of the exhibition which ought not to go unrewarded.

The show is a pleasant and instructive one. An immense variety of objects has been brought together, of which it would be too much to say that all are beautiful or rare. Much of the catalogue indeed reads very like those which Messrs. Leonard & Co and their rivals send out from time to time to herald forth new opportunities for the collectors. But this is no reproach, considering the vast amount of Chinese and Japanese ware that has been poured in on our hungry community in recent years. And the great prizes do not often trust themselves to loan collections. But making all allowance for the extent to which people are now accustomed to the ordinary beauties of Oriental art, and subtracting from the collection all that is valuable only from association ("He in glory, America in tears," and that sort of thing), we have still enough left to invite and reward a minute and careful inspection.

The collection is curiously deficient in china and porcelain. With the exception of the Japanese and Chinese ware, which as I have intimated is much what we have seen before at the auction rooms, there are to be seen perhaps a dozen pieces of Sèvres, as many more of Dresden, a half dozen Delft bowls and plates, and a few very interesting examples of early English china, including Wedgwood, Worcester, Lowestofft, and a piece or two of old Fulham, of pale gray color, refined in form, carrying a floral decoration in low relief without variation of color. There are also some good examples of the curious Capo di Monte ware, with the decoration of figures in florid color, and in such high relief as in some cases to confuse the form of the piece. Similar in style, but superior in form and color, is the beautiful Giugri tankard, contributed by Mr. Briggs.

There is a small but fine collection of arms, carrying a curious fascination, — from the wicked-looking Malay creese (or kriss as it is spelled in the catalogue) to the elegant but no less deadly Italian rapier, from the rude lance of the Norwegian to the two-handed sword of the Chinese or the battle-axe of the Persian. What various forms of human strife and human passion do not these contrasting weapons suggest. Here they are, reposing innocently enough, after nobody knows what pathetic or horrible histories, on the tables and walls of a highly respectable and peaceable society for the encouragement of decorative art. Perhaps the most sumptuous weapons here shown are two swords taken from an Algerine frigate captured by Decatur in 1815. The scabbards are wonderful specimens of *repoussé* work, in silver apparently, and of admirable design.

The department of silver, snuff-boxes, and jewelry is extremely attractive, without containing many single pieces of unusual merit or great variety. The historical element comes out strongly in this department, — the Paul Revere tea-pots and milk-jugs and porringers, the Governor Hancock forks, the Peter Faneuil casters, the John Adams cider-mug, and more which I do not recall, reminding us that there were comfortable cakes and ale in the good old colony times when we lived under the king. Here is a good representation of the silver work of most of the European states, — tankards and spoons and cups and salt-cellars, from Norway, Russia, Poland, Denmark, and even Lapland, to say nothing of the nations with whose work we are more familiar. I remember with special delight two pieces of Vienna silver; the one a little pitcher, perhaps four inches high, with a *repoussé* decoration, the other a mustard pot of chiselled work; both pieces exquisite in form and in ornament. A good deal of curious old jewelry is also shown, much of it more curious than beautiful, and glad to help itself out by a close association with some emperor of China, or mummied king of Egypt, or at least some French queen or Italian countess.

In this department are perhaps a score of miniatures on ivory; a charming branch of portraiture now quite crowded out of existence by the all-pervading genius of photography. These include three or four portraits by Isabey and two or three by Malbone, which anybody may be glad of the opportunity to examine.

There is a department of Japanese art, distinct from the china ware, which comprises a most attractive variety of minor trinkets and *bibelots*, not easily classed, but which strikingly exhibit the curious ingenuity, the droll humor, and the unrivalled skill in workmanship of that extraordinary people.

Last on the catalogue, but by no means last in the consideration of the visitors, comes the department of laces and embroideries. This is full of interest and instruction, and lies, perhaps, more directly in the line of the work of the society than any other. The collection of laces, though not large, contains some exquisite examples of many of the most rare and delicate varieties of this most fascinating handiwork, of which the very names carry a certain poetic charm, as Rose point de Venise, Spanish Blonde, Brussels point à l'aiguille, etc., etc.

Among the embroideries which line the walls of the inner room are old and fine examples of Turkish and Persian hand embroidery, of Chinese and Japanese screens, the latter blazing with gold and color, of Spanish and other church vestments, and of domestic embroideries of various dates and styles. Among this last, the most striking and original are the work of Mrs. Holmes, which is all designed with a certain apparent carelessness and absence of study and forethought which makes the result quite amazing in view of its harmony of color and its pictorial effect These embroideries are in fact pictures, without pretending to be such. No. 59, for example, suggests a landscape, in which a brilliant crimson bush stands out in strong relief against a mass of dark although sun-lighted foliage. No. 69, again, suggests a river with a tangle of blossoms and reeds in the foreground and a verdant sloping bank on the other side. But if these were accused of being landscapes their author might well reply for them that they claimed to be nothing of the sort, but only "arrangements in crimson and green" or whatever. No. 68 is a panel of brown silk with a branch of milkweed with bursting pods, and a sombre evergreen bending over it. No. 66, a disc of pale-blue satin with a few brown branches and buds thrown here and there over it, is called Spring. In all these pieces, though they are not equal in effect, there is with all their dash a certain temperateness and knowledge which preserves them from that excess to which in less able hands this style would naturally tend. They are eminently decorative but could be seen to much better advantage singly and in position than among the crowd of other work.

Mr. Little also has several pieces here, more confessedly pictorial than those of Mrs. Holmes, an admirable panel of sunflowers, and another carrying a conventionalized projection of an apple-tree with foliage and fruit on a pale-blue silk ground.

This suggestive style, as it may be termed, is the modern fashion, I believe, in other arts than embroidery. In this view it is interesting to contrast the work of which I have just been speaking with the crape shawl, No. 119, in the same room, — a piece of exquisitely finished and delicate embroidery on a pale yellow ground, with a beautiful fringe, — or with No. 131, a piece of embroidery in colors a hundred years old, pale and faded, but extremely delicate and refined. A.

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### THE CINCINNATI BUILDERS' EXCHANGE AND THE LIEN LAW.

Cincinnati, O.

The Builders' Exchange, which has now been in existence about a year, has accomplished much good so far and is destined to occupy a position of equal importance with the Chamber of Commerce or the Board of Trade. The Exchange is now preparing very carefully a lien law, which it hopes to have in readiness for the present legislature to act upon. Each item being thoroughly scrutinized, the best legal advice is obtained on each point, with the hope and expectation that the owner, the head contractor, and the sub-contractor will be alike protected. The present lien law gives great dissatisfaction among sub-contractors, for the reason that all the courts, so far, have held that an owner cannot be made in law or equity to pay the same bill more than once, unless fraud is clearly proven between said owner and the head contractor. The courts hold that if an owner advances money in good faith faster than the contract calls for, in order that his house may be completed, the sub-contractors cannot look to the property for the payment of any claim they may have against it; and the claim among the sub-contractors is that no one of them has yet recovered anything under the present lien laws.

Hence the Exchange is at present in labor upon this matter. Let us hope it will bring forth a law comprehensive enough to protect all interested parties.

While upon this subject of the lien law it may be well enough to state another very serious objection to it, which is, that if it were literally enforced it would stop every building in the State of Ohio where a lien was filed, and no further work could be done on that building until all questions concerning the rights of the lien-holder were fully satisfied, which in accordance with the law's delays in this State would be likely to be three years.

One other peculiarity of the present law is that no two lawyers ever give the same opinion as to any of its clauses. A practice has been growing up in this city for some years past, which would, if unanimously agreed upon, settle, better than any laws can settle it, the whole question as to liens and the rights of sub-contractors. We refer to the movement looking toward the abolishment of the sub-contractor altogether, and letting the stone-mason, the brick-mason, the plumber, and what not deal directly with the owner. It does look strange at times that a carpenter who often has not one hundred dollars invested in his business, without even a shop, factory, or anything of the kind, is the responsible man for a $50,000 building, and the boss over men who have their tens or even hundreds of thousands of dollars invested. All money has to pass through the man of no means, and it is no wonder that much of it often sticks to the wrong palm. This movement would also be of benefit to the owner for the reason that it gives him the choice of the various mechanics, which right he does not possess under the old system. C.

## COMPETITIONS IN INTERIOR DECORATION.

### RULES AND REGULATIONS.

THE conditions under which we reopen the Competitions in Interior Decoration, which proved so interesting last year, are the same as before. These we repeat below for the sake of new competitors, and that old competitors may not have the trouble of looking up the rules and regulations.

1. The programmes will be published in the columns of this paper at least four weeks before the day on which the competition closes, and they will as before deal mainly with questions of interior decoration.

2. A first and second prize will be awarded to the best two designs submitted in each competition; the decision resting with a jury of three architects.

3. In awarding the prizes, heed will be taken of the manner in which the programme has been followed, the excellence and appropriateness of the design, and the execution of the drawing.

4. Each competitor is requested to sign his drawing with some motto or a simple device that can be recognized from its verbal description, and to inclose to the editors his real name and address, together with his *nom de plume*, on a half-sheet of note paper.

5. The designs to which have been awarded the prizes will be announced in the *American Architect*, the authorship of the designs being there indicated by the devices or mottoes only. The real names of the authors of the prize designs will be published at the end of the year.

6. The prize drawings and such others as seem desirable will, as before, be grouped on one of the regular pages of illustrations.

7. Only those designs will be published which in the eyes of the editors seem worthy. The order of publication of the designs is to be taken as in no way indicative of the decision of the jury.

8. Drawings which are received after the day named in the respective programme will be excluded from the competition, but not necessarily from publication.

9. The limits of the drawings must in no case exceed 16½ inches in length by 10½ inches in breadth. This space is to be inclosed by a frame composed of single lines only.

10. The scale of the several parts of each drawing should be indicated by a graphic scale.

11. Drawings may be sent flat or in rolls, by express or by mail. They will be returned to their authors at the end of the year.

12. For instructions as to the manner in which drawings should be prepared, competitors are referred to the instructions which are regularly printed in one of the columns of "building intelligence."

### PRIZES.

The first prize will be

EXAMPLES OF ENGLISH MEDIÆVAL FOLIAGE AND COLORED DECORATION. Taken from Buildings of the Twelfth to the Fifteenth Century. With descriptive letter-press. By James K. Colling, F. R. I. B. A. 1 vol., large 4to, 76 plates and many woodcuts, $15.00.

OR, ART FOLIAGE, FOR SCULPTURE AND DECORATION. With an Analysis of Geometric Form, and Studies from Nature, of Buds, Leaves, Flowers, and Fruit. By James K. Colling, F. R. I. B. A. 1 vol., large 4to, 72 plates, $15.00.

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The second prize will be

PAINTERS, SCULPTORS, ARCHITECTS, ENGRAVERS, AND THEIR WORKS. A Handbook. By Clara Erskine Clement. With illustrations and monograms. In one vol., crown 8vo, half calf, $5.00.

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### COMPETITION NO. I. — A LIBRARY WALL.

The programme for the first competition will be the treatment of the wall of a private library in a city house. This wall must measure 20 feet in length and 12 feet in height; it is to be pierced by a doorway, and may be decorated either by a large painting or by a statue of the Venus of Milo, while book-cases occupy as much of the remaining space as may seem desirable.

*Required:* An elevation of the side of the room, and details of the book-cases, including profiles of the mouldings, to a larger scale.

Drawings must be received at the office of the *American Architect* on, or before, Saturday, March 1.

## NEWPORT SEWERAGE — A CORRECTION.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

*Dear Sir,* — In my communication concerning the sewerage of Newport (*American Architect*, page 23), I quoted Mr. Philbrick as having selected a point on Coaster's Harbor Island for the outlet of our main sewer. This statement I made on the authority of the chairman of the committee having the question in charge.

Mr. Philbrick says: "In my letter to the committee of the city government, last August, I stated most definitely that I was not sufficiently informed on the subject to form an opinion, and am at a loss to know whence you could have received such an impression as to justify you in quoting me as you have done."

This correction is the only amends which it is in my power to make. GEORGE E. WARING, JR.

NEWPORT, R. I., January 22, 1879.

## WANTED, AN ANSWER.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

*Dear Sir,* — Can any one inform us what expense the American Institute of Architects is under which forces it to call for an additional assessment? The writer, in common with all the Associates of the A. I. A., pays $7.50 per annum for which he has absolutely *nothing* in return. He is now politely requested to pay $4.00 more to pay for printing the proceedings of the annual convention, when his regular dues *should be* ample for the purpose. As a mere matter of right, he would like to know what is done with the money?

Respectfully, ASSOCIATE.

BALTIMORE, January 22, 1879.

[Inasmuch as the other communications on this subject have not evoked any official response from any one who is authorized to speak for the Institute, we venture to refer "Associate" to the *American Architect* for December 21, 1878, where we have given such explanation of the matter as we were able to suggest. — EDS. AM. ARCHITECT.]

## ARCHITECTS' FEES.

EVANSVILLE, January 22, 1879.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

*Dear Sir,* — The columns of your paper have at different times contained interesting communications, in regard to the relations of architect to client, and considerable light has been thrown on many points heretofore in dispute. A case, however, showing how far, in many parts of the country, we still are from a perfect understanding with the public as to our claims and duties, has recently come to my notice. The circumstances are briefly as follows: A citizen of means gave to the people of this place certain lands, which were intrusted to a board of trustees composed of prominent men of the city, for the purpose of erecting a public library. An arrangement was made with a firm of architects, the terms of which the following copy of the minutes of the Board will perhaps sufficiently explain:

"On motion it was resolved to employ Messrs. ——, architects, and to pay them three and a half per cent on cost of the building, for plans, specifications, and superintending the building." Complete plans were prepared, and work was carried on, until the basement walls were complete, when the funds were exhausted, and further progress arrested. Nothing has been done now, for a period of nearly two years. The architects have been refused pay for the complete plans, on the ground that it is not due until the building is complete.

The question in dispute seems to be whether an architect is or is not entitled to pay for plans when completed: a matter of importance to all the profession, and any precedent or legal decision bearing on the case would be of interest to many of your readers.

Jas. W. Reid, Architect.

[There is no uncertainty as to the usage by which an architect's fee for his plans is held to be due when they are finished and accepted. According to the general custom, recorded in the schedules compiled by the British and American Institutes, the fees are due in instalments, — one per cent when preliminary studies have been accepted, two and a half when working plans and specifications have been furnished, and so on. Most architects do not make a separate charge for preliminary studies when their work goes further, but it is a recognized practice to render a bill for half the full fee of five per cent when the contract is signed. This is often waived when the work goes on continuously, especially if the fee is not a large one, the architect reserving his whole charge to the end, when the exact cost of the building is known. But it is fully understood that this is waiving a right; and there is no authority whatever for withholding payment for making plans, when the work is interrupted. It is not very easy to point out conspicuous examples of a usage which no one notices particularly because it is not disputed; but any architect of experience in cities where the profession is well established would be able to give instances from his own practice. — Eds. Am. Architect.]

## PUBLICATIONS RECEIVED.

Report of Proceedings of the Board of State House Commissioners from Date of Organization to December 31, 1878, to the Governor of Indiana. Indianapolis. January 1, 1879.

Sanitary Engineering — Sewerage. A Guide to the Construction of Works of Sewerage and House Drainage, with Tables for Facilitating the Calculations of the Engineer. By Baldwin Latham, C. E., M. Inst. C. E., F. G. S., F. M. S., Past President of the Society of Engineers, etc. Second Edition. London and New York: E. & F. N. Spon. 1878.

## NOTES AND CLIPPINGS.

Fall of a Snow-burdened Roof. — Taylor and Faulkner's flooring mill at Cincinnati was partially destroyed on the night of the 10th ult. Snow was on the roof at the time to the depth of about twelve inches, and a rain coming up during the night turned this snow into ice, which seems to have been the last straw that broke the roof. An examination of the roof shows it to have been constructed of wooden girders strengthened by hog chains. These girders ran across the building and supported the roof timbers which ran lengthwise with the building. It was the girders that broke, and the supposition of many persons is that the recent cold had so contracted the iron of the girder as to cause the accident when the extra weight of ice came upon it; this theory is helped out by the fact that the mill had not been running for some two or three weeks, and hence was not heated up. One peculiar incident of the mishap was that the centre building (the one in which the girders broke) fell against the north building, from which it was separated by a ten-foot alley, with such force as to throw over the east end of the north building The loss to the company will be about $10,000, which the insurance does not cover. The firm have begun already to rebuild the factory. No person was hurt in any way.

The Walled Lake in Iowa. — The greatest wonder in the State of Iowa, and perhaps any other State, is what is called the "Walled Lake," in Wright County, 12 miles north of the Dubuque & Pacific Railway, and 150 miles west of Dubuque City. The lake is from two to three feet higher than the earth's surface. In some places the wall is 10 feet high, 15 feet wide at the bottom, and 5 feet wide on top. Another fact is the size of the stones used in construction, the whole of these varying in weight from three tons down to 100 pounds. There is an abundance of stones in Wright County, but surrounding the lake to the extent of five or ten miles there are none. No one can form an idea as to the means employed to bring them to the spot, or who constructed it. Around the entire lake is a belt of woodland half a mile in length, composed of oak. With this exception the country is a rolling prairie. The trees must have been planted there at the time of the building of the wall. In the spring of the year 1856 there was a great storm, the ice on the lake broke the wall in several places, and the farmers in the vicinity were obliged to repair the damages to prevent inundation. The lake occupies a ground surface of 2,800 acres; depth of water as great as 25 feet. The water is clear and cold; soil sandy and loamy. It is singular that no one has been able to ascertain where the water comes from or where it goes, yet it is always clear and fresh. — *Dubuque Herald.*

Raphael's Madonna Conestabile. — Hitherto little has been known of the history of the beautiful little "Madonna and Child," by Raphael, now called the "Madonna Conestabile," which was bought by the Emperor of Russia, in 1871, from its Italian possessor. A writer in the *Allgemeine Zeitung* traces it from its first possessor, Alfano Alfani, a distinguished gentleman from Perugia, down to its last, Giancarlo Conestabile, who was obliged, by adverse circumstances, to part with this family heirloom. Since it has been in Russia the picture has been transferred from wood to canvas, a perilous operation, but this has been accomplished with successful results.

Pennsylvania Museum and School of Industrial Art. — The trustees of the Pennsylvania Museum and School of Industrial Art have held their third annual meeting to consider the yearly reports and to elect trustees. The original plan of the institution had been so developed as to place it upon a more solid and useful basis. The Industrial Art School made much progress during the year, the systems of free-hand and scientific drawing being particularly successful. The total admissions to the Museum were 15,738. The report closes by attacking the present style of teaching drawing in public schools. The report goes on to say that the absence of any systematic course of teaching drawing in public schools is a serious drawback to any effort in the direction of a higher art education. The trustees intend to urge the Board of Education to introduce a thorough course of drawing in the schools of the city. The receipts last year were $15,000, the expenses being $10,000. The subscriptions to the museum and school since their beginning have amounted to $58,000. The following officers were elected to serve for the year 1879: President, Coleman Sellers; Vice-Presidents, Edward T. Steel and William Platt Pepper; Managing Director, W. W. Justice; Treasurer, Clarence H. Clark; Secretary, H. Dumont Wagner; Trustees, to serve for five years, W. H. Merrick, H. C. Gibson, Thomas Cochran, N. Parker Shortridge; to serve for four years, Frederick Graef.

Versailles and its Bavarian Imitation. — King Ludwig's royal château, which he has set about building on the island of Herrenwörth in the Chiemsee, in Bavaria, after the model of the palace at Versailles, will find him, when completed, only forty-eight years old, and he has set apart fifteen years for the building of it. The 300 workmen now engaged in the work are lodged in barracks, temporarily constructed for them, and, by special order from the king, great care is taken to provide for their comfort and to satisfy their needs at a moderate expense. The *Telegraph* (London) observes that such consideration was not shown when Louis XIV. was building his Versailles. A writer has recorded that 36,000 men and 6000 wagons were engaged every day on that work, and Madame de Sévigné has said that a certain number of the wagons conveyed back to Paris at dead of night the corpses of those who had died during the day. In the memoirs of Madame Lafayette it is stated that large bodies of the royal troops were detailed to aid the laborers in the digging of the foundations, but that the unwholesome toil of excavating marshy earth sent every day scores of soldiers to the hospital. The beginnings of Versailles were of the humblest kind. Louis XIII., being much addicted to hunting in the Forest of St. Leger, grew tired of supping in dirty cabarets and sleeping in dilapidated windmills, and consequently resolved to transform a little pavilion which he possessed at Versailles into "a house of cards." It was his son, the Great Louis, who pulled down the "château de cartes," and bade his architect, Mansard, build in its stead a palace surpassing in extent and magnificence all the "stately pleasure-domes" that all the Kublai-Khans could ever decree. The present Ludwig, while wanting in the resources of his grandfather, the patron of Cornelius, Kaulbach, and Overbeck, evinces no diminution in the passion for building. In the mountains he has castles upon castles; he has builded and builded; and this new Versailles, while it may not lessen taxes or diminish the price of sausages and beer, will furnish employment for labor, whatever political economy may think of such methods of removing the burdens of a people.

Excavations in Rome. — The excavations in the valley of the Forum at Rome have now disclosed the whole of the Via Sacra between the Temple of Antoninus and Faustina and the Arch of Titus, with the buildings that lined it. Some of these buildings were already known; nothing, however, was known as regards the parallelogram between the Via Sacra, the base of the Palatine Hill, the Forum, and the Arch of Titus. A great mistake was made by old topographers, who placed in that narrow strip of land the temple and atrium of Vesta, the Regia, the Temple of Jupiter Stator, and the house of Tarquinius. The parallelogram in ancient days contained only a line of commonplace buildings of brick strengthened at the corners with blocks of travertine. The fronts of the buildings receded a little from the line of the street, and the space thus formed was filled with honorary monuments. Among these monuments are noticed the following: (*a*) A pedestal for a bronze statue, raised A. D. 339 by Fabius Titianus, consul, and prefect of Rome; (*b*) a pedestal for a statue, raised A. D. 335, to Constantius, by Flavius Leontius, prefect of Rome; (*c*) a kind of small triumphal arch (or shrine) made at the expense of the inhabitants of Tarsus; (*d*) the pedestal of an equestrian statue, raised very likely to one of the Constantines; (*e*) some fragments of the *Fornix Fabianus*; (*f*) a fragment of the *fasti triumphales*, from the year 643 to 649; the victories mentioned are those in Macedonia, in Western Spain, and in Numidia, and King Jugurtha is expressly named.

The Channel Tunnel — The site of the tunnel mouth of the Channel Tunnel on the English side, at St. Margaret's Bay, has been abandoned, and the work there has been stopped because recent surveys between that point and Sangatte on the French side proved that to cut a tunnel between those points would entail an enormous amount of work in sinking. The scheme now before the company provides for the sinking of a new shaft at or close to Dover. The site on the French side at Sangatte, near Boulogne, is still looked upon as the best that could be chosen for the commencement of the tunnel. The shaft sunk there is already 70 metres in depth, with a diameter of 2 metres, and the engineers consider that when they have got 10 metres further down the horizontal cutting may be commenced. The engineers of both countries agree that the French opening of the tunnel is the most difficult part of the undertaking, as a clayey soil has to be dealt with instead of chalk, and the incursion of water causes much trouble. — *The Iron Age.*

Artificial Marble. — Mr. William W. Wotherspoon states that he saw in Rome, three years ago, the exact process, as detailed in the London letter of the *Evening Post*, of making marble by subjecting soft limestone to steam-pressure. He gives the following as the ingredients of the bath to which the stone is subjected after its removal from the boiler: water, 2,000 kilogrammes; sulphuric acid, 33 kilogrammes; kaolin, 68 kilogrammes; potash, 17 kilogrammes.